From Offline Awareness to Online Processing: Predicting Implicit Morphological Priming in Children

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When skilled readers encounter *teacher*, they automatically activate its morphological constituents (*teach* + - *er*), as demonstrated through robust morphological priming effects (e.g., faster recognition of *teach* after *teacher*). This automatic decomposition of morphologically complex words is fundamental to fluent reading, yet how it develops remains poorly understood [1]. While researchers commonly assess children's morphological knowledge using offline metalinguistic tasks, such as analogies, production tasks, and nonword completion, a critical question has gone largely unexamined: do these explicit measures actually predict children's *implicit* morphological processing during real-time word recognition?

This study bridges the gap between offline metalinguistic awareness and online automatic processing by directly testing whether commonly used morphological awareness (MA) tasks [2] predict children's morphological priming effects. If explicit MA tasks tap into the same underlying representations that support automatic morphological decomposition, performance on these offline measures should predict the magnitude of implicit priming. Alternatively, if offline tasks measure declarative knowledge divorced from procedural processing mechanisms, we would expect little relationship between MA scores and priming patterns. Understanding this relationship is crucial both theoretically, illuminating the cognitive architecture underlying morphological processing.

We administered three widely used MA tasks to French-speaking elementary students: an **analogies task** requiring pattern extension (e.g., *rond : rondeur :: frais : ?*), a **nonword completion task** involving suffix selection in sentence contexts, and a **production task** requiring generation of morphologically complex forms from stems. Crucially, we also measured implicit morphological processing using a cross-modal priming paradigm coupled with lexical decision. In this task, children heard auditory primes (e.g., *enseignant* 'teacher') followed immediately by visual targets (e.g., *enseigner* 'to teach') and made lexicality judgments. We compared children's response times for morphologically related pairs versus unrelated controls, then calculated how closely their priming patterns resembled those of adult readers. This yielded an implicit processing score reflecting the maturity of children's automatic morphological decomposition during word recognition.

The central finding was striking: only the **production task** significantly predicted children's implicit morphological priming. Children who performed better at generating morphologically complex words in the offline production task showed more adult-like automatic decomposition of complex words during online lexical decision. In contrast, neither the analogies task nor the nonword completion task predicted implicit processing scores, despite all three MA measures showing moderate intercorrelations with each other. This dissociation reveals that while various MA tasks may tap overlapping aspects of morphological knowledge, only production task performance captures something fundamental about the mental representations and processes that support automatic morphological decomposition during reading.

Why does production task performance predict implicit priming when other MA tasks do not? We propose that production tasks engage the same mental representations and decomposition processes recruited during automatic word recognition. When children generate *fraîcheur* from *frais* in context, they must activate and combine morphological constituents. In contrast, analogies may rely more on pattern matching and rule application, while nonword completion may emphasize morphosyntactic knowledge without necessarily engaging the lexical decomposition processes critical for priming. The production task's unique predictive power thus suggests it provides a window into the procedural mechanisms underlying morphological processing, not merely declarative knowledge about word

structure.

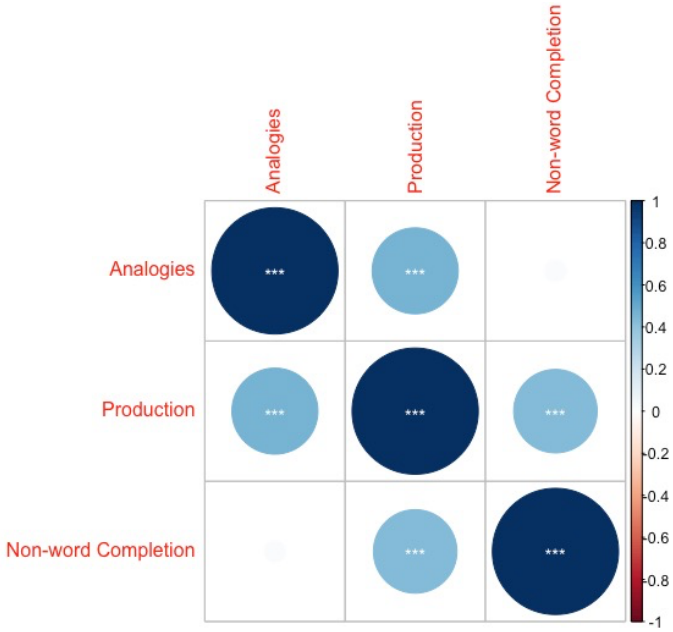

Figure 1: Correlation matrix of morphological awareness scores as measured by three tasks: analogies, production, and nonword completion.

References

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